Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

CONDITIONAL MAJOR/SYNTHETIC MINOR PERMIT NO F-98-006 (REVISION 2)
THE ENSIGN-BICKFORD COMPANY
GRAHAM, KENTUCKY.
NOVEMBER 6, 2001
APRIL J. WEBB, REVIEWER
PLANT I.D. # 21-177-00067
APPLICATION LOG # 53702

Revision Two:

Permit F-98-006 (Revision 2) was requested after the company tested and found that the tube side outlet temperature was higher than the temperature put in the permit. Therefore, Revision 2 is issued to correct this temperature. It was determined that as long as the control efficiency tested at 88% or greater that the temperature could be adjusted accordingly.

Revision Two:

Permit F-98-006 was originally prepared for issue by John Floyd in August 1998. In the draft permit the condenser efficiency (as stated by Ensign-Bickford) was given as 99%. At the request of the company, the efficiency was reduced to 95%, and an emission limit of 36 tons of xylene was imposed to preclude PSD. The final permit was issued in August, 1999.

This revision (Revision 1) has been done because Ensign-Bickford is almost at the end of their compliance period, and they believe that they will not exceed 88% condenser efficiency. The permit has been revised to reflect this.

This is a significant change, and would ordinarily require public notice. However, in conjunction with this change, Ensign-Bickford has also voluntarily accepted a xylene emission limit of 9.04 tons (that number being chosen to allow the completion of an even number of batches of GAP during the year), which makes them a conditional major source. Since this reduction is federally enforceable, of benefit to the environment, and does not involve the emission of a new pollutant, a new public notice should not, for practical purposes, be necessary. This will allow the company to comply with the terms and conditions of this revision prior to the original permit's compliance date.

The remainder of this statement of basis has been left the same as for the original permit to enhance continuity.

Final Determination:

No comments were received during the public comment period. Changes were made to the permit for clarification based on the most recent permitting guidance from US EPA. No substantive changes were made. Between the draft and the final permit there has been a change in potential and actual emissions for the reactor process due to a company submitted reduction in the condenser efficiency from 99% to 95%.

SOURCE DESCRIPTION:

The Ensign-Bickford Company is an explosives manufacturing plant located on highway 175 in Graham, Kentucky. The primary product manufactured here is pentaerythritol tetranitrate (PETN) made in the Nitration Plant. Additional products permitted at this source are tetranitrocarbizole (TNC), Nirtro Triazone (NTO), and tris [1-(2-methyl)aziridinyl] phosphine oxide (MAPO), all permitted to be produced in the Multiple Reaction Facility (MRF), and explosive cord produced at the Cord Plant.

The permit application received on September 22, 1997 is for the purification of glycidyl azide polymer (GAP) at the MRF. This vacuum distillation process requires the use of two storage tanks (TK503 and TK504), a reactor (RX915), ancillary pumps, valves and flanges, and a heat exchanger (HX536) used solely as a voluntary air pollution control device. The use of the heat exchanger to control xylene emissions from the reactor is required to preclude applicability of State Regulation 401 KAR 51:017, Prevention of significant deterioration of air quality (PSD).

Air Pollution Control Device (APCD):

A Shell and Tube Heat Exchanger (HX536) is used to condense the vapor stream from vacuum distillation of xylene from the GAP/xylene solution in reacto RX915. The Heat Exchanger (HX536) must meet or exceed 95% xylene

removal efficiency in a compliance demonstration in addition to complying with several operational parameter limitations listed in the permit. These restrictions are placed on the operation and efficiency of a voluntary APCD in order to preclude this project from applicability of PSD. Also, a voluntary restriction on the number of batches of GAP/Xylene to be produced during any twelve-month period has also been accepted by Ensign-Bickford.

Public Comment Period:

No written comments were received regarding this proposal.

The Muhlenberg County Judge Executive's office requested a public hearing concerning this proposal during the public comment period. In a letter received on February 23, 1998, the Muhlenberg County Judge Executive's office canceled their request for a public hearing, indicating that the officials at the Ensign-Bickford plant were able to answer the questions and concerns of the citizens of the community.

Emissions:

The breakdown of emissions of xylene from each affected facility is given in the table below:

Affected Facility	Uncontrolled Emission Potential (TPY of xylene)	Controlled Emission Potential (PTE) [TPY of xylene]
Xylene Storage Tank (TK503)	0.06	0.06
GAP/Xylene Storage Tank (TK504)	0.07	0.07
Fugitive Emissions	1.84	1.84
Reactor (RX915)	817.97	41.43
TOTALS	819.94	43.40